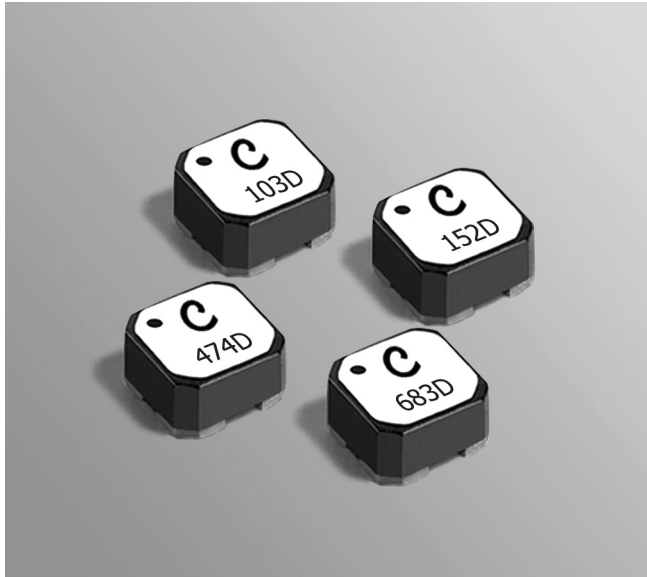


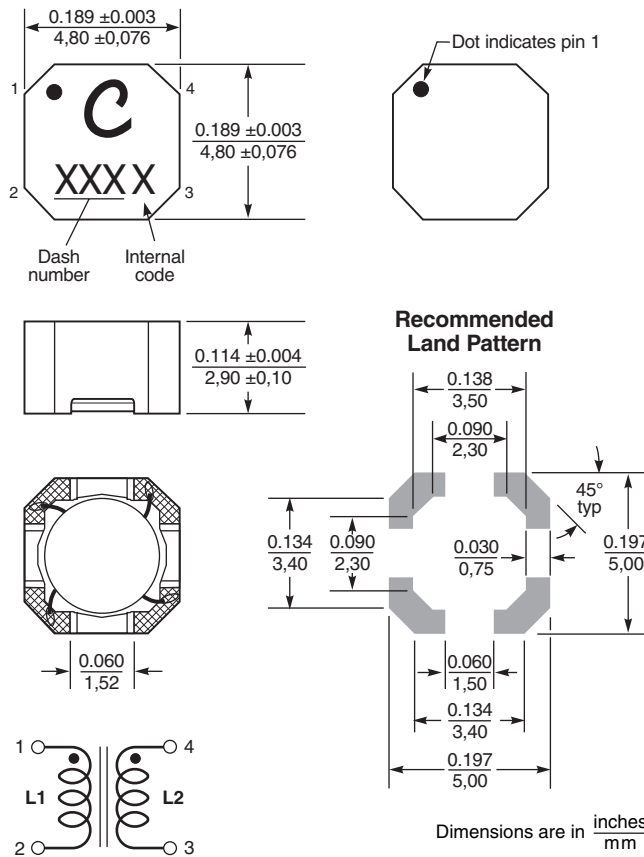
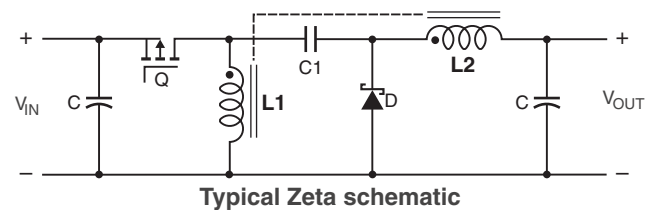
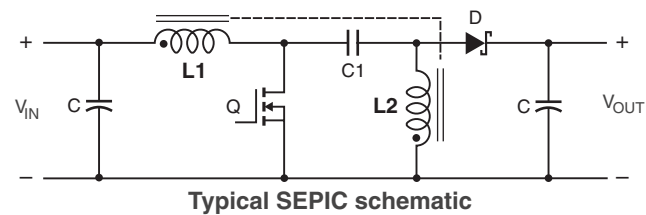
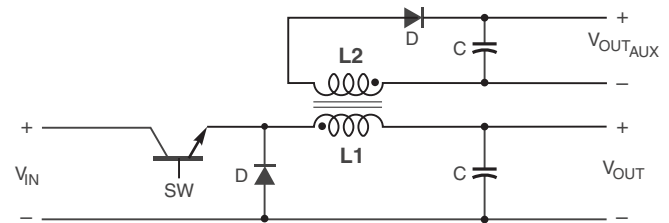
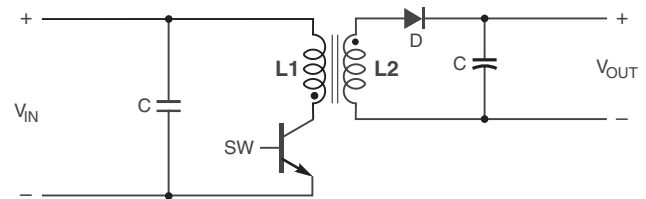
# Coupled Inductors LPD5030 For Flyback, SEPIC, Zeta and other Applications



The LPD5030 coupled miniature shielded inductors are only 3 mm high and 5 mm square. They are ideal for use in a variety of circuits including flyback, multi-output buck and SEPIC.

These inductors provide high inductance, high efficiency and excellent current handling in a rugged, low cost part.

They can also be used as two single inductors connected in series or parallel or as a common mode choke.



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# Coupled Inductors for SEPIC Applications – LPD5030 Series

Part number <sup>1</sup>	Inductance <sup>2</sup> ( $\mu$ H)	DCR max <sup>3</sup> (Ohms)	SRF typ <sup>4</sup> (MHz)	Coupling coefficient typ	Leakage L typ <sup>5</sup> ( $\mu$ H)	Isat (A) <sup>6</sup>			Irms (A)	
						10% drop	20% drop	30% drop	both windings <sup>7</sup>	one winding <sup>8</sup>
LPD5030-102NE_	1.0 $\pm$ 30%	0.042	153	0.95	0.09	4.30	4.49	4.67	2.20	3.11
LPD5030-152ME_	1.5 $\pm$ 20%	0.048	118	0.97	0.09	3.90	4.20	4.30	2.05	2.90
LPD5030-222ME_	2.2 $\pm$ 20%	0.067	87.0	0.98	0.10	2.80	2.98	3.07	1.95	2.76
LPD5030-332ME_	3.3 $\pm$ 20%	0.077	61.0	0.98	0.10	2.50	2.70	2.80	1.70	2.40
LPD5030-472ME_	4.7 $\pm$ 20%	0.111	49.0	0.99	0.11	2.10	2.20	2.20	1.40	1.98
LPD5030-562ME_	5.6 $\pm$ 20%	0.125	44.0	0.99	0.11	1.80	1.80	1.89	1.35	1.91
LPD5030-682ME_	6.8 $\pm$ 20%	0.159	40.0	0.99	0.12	1.40	1.48	1.48	1.20	1.70
LPD5030-103ME_	10 $\pm$ 20%	0.210	28.0	0.99	0.13	1.20	1.20	1.20	1.05	1.48
LPD5030-153ME_	15 $\pm$ 20%	0.298	23.0	0.99	0.15	1.00	1.17	1.17	0.85	1.20
LPD5030-223ME_	22 $\pm$ 20%	0.452	17.0	>0.99	0.17	0.89	0.98	0.98	0.70	0.99
LPD5030-333ME_	33 $\pm$ 20%	0.565	16.0	>0.99	0.20	0.73	0.77	0.78	0.60	0.85
LPD5030-473ME_	47 $\pm$ 20%	0.806	12.0	>0.99	0.24	0.59	0.63	0.65	0.50	0.71
LPD5030-683ME_	68 $\pm$ 20%	1.13	9.00	>0.99	0.29	0.50	0.54	0.55	0.43	0.61
LPD5030-104ME_	100 $\pm$ 20%	1.79	8.44	>0.99	0.37	0.47	0.54	0.56	0.33	0.47
LPD5030-154ME_	150 $\pm$ 20%	2.43	6.72	>0.99	0.46	0.38	0.43	0.45	0.28	0.40
LPD5030-224ME_	220 $\pm$ 20%	3.30	5.53	>0.99	0.54	0.31	0.35	0.36	0.24	0.34
LPD5030-334ME_	330 $\pm$ 20%	5.36	4.17	>0.99	0.65	0.25	0.25	0.32	0.18	0.25
LPD5030-474ME_	470 $\pm$ 20%	7.51	3.52	>0.99	0.76	0.21	0.24	0.26	0.15	0.21
LPD5030-684ME_	680 $\pm$ 20%	10.8	2.93	>0.99	0.89	0.17	0.20	0.21	0.13	0.18
LPD5030-105ME_	1000 $\pm$ 20%	16.5	2.33	>0.99	1.20	0.15	0.17	0.17	0.10	0.14

1. Please specify **termination** and **packaging** codes:

**LPD5030-105MEC**

**Termination:** E = RoHS compliant, halogen free silver-palladium-platinum-glass frit.

Special order:

**T** = RoHS tin-silver-copper (95.5/4/0.5) or

**S** = non-RoHS tin-lead (63/37).

**Packaging:** C = 7" machine-ready reel. EIA-481 embossed plastic tape (750 parts per full reel).

**B** = Less than full reel. In tape, but not machine ready. To have a leader and trailer added (\$25 charge), use code letter D instead.

**D** = 13" machine-ready reel. EIA-481 embossed plastic tape. Factory order only, not stocked (2500 parts per full reel).

- Inductance shown for each winding, measured at 100 kHz, 0.1 Vrms, 0 Adc on an Agilent/HP 4284A LCR meter or equivalent. When leads are connected in parallel, inductance is the same value. When leads are connected in series, inductance is four times the value.
- DCR is for each winding. When leads are connected in parallel, DCR is half the value. When leads are connected in series, DCR is twice the value.
- SRF measured using an Agilent/HP 4191A or equivalent. When leads are connected in parallel, SRF is the same value.
- Leakage Inductance is for L1 and is measured with L2 shorted.
- DC current, at which the inductance drops the specified amount from its value without current. It is the sum of the current flowing in both windings.
- Equal current when applied to each winding simultaneously that causes a 40°C temperature rise from 25°C ambient. See temperature rise calculation.
- Maximum current when applied to one winding that causes a 40°C temperature rise from 25°C ambient. See temperature rise calculation.
- Electrical specifications at 25°C.

Refer to Doc 639 "Selecting Coupled Inductors for SEPIC Applications."

Refer to Doc 362 "Soldering Surface Mount Components" before soldering.

## Coupled Inductor Core and Winding Loss Calculator

This web-based utility allows you to enter frequency, peak-to-peak (ripple) current, and Irms current to predict temperature rise and overall losses, including core loss. [Go to online calculator.](#)

**Core material** Ferrite

**Core and winding loss** [Go to online calculator](#)

**Weight** 210 – 225 mg

**Terminations** RoHS compliant, halogen free silver-palladium-platinum glass frit. Other terminations available at additional cost.

**Ambient temperature** –40°C to +85°C with Irms current, +85°C to +125°C with derated current

**Storage temperature** Component: –40°C to +125°C.

Tape and reel packaging: –40°C to +80°C

**Winding to winding isolation** 100 V

**Resistance to soldering heat** Max three 40 second reflows at +260°C, parts cooled to room temperature between cycles

**Moisture Sensitivity Level (MSL)** 1 (unlimited floor life at <30°C / 85% relative humidity)

**Mean Time Between Failures (MTBF)** 26,315,789 hours

**Packaging** 750/7" reel; 2500/13" reel Plastic tape: 12 mm wide, 0.32 mm thick, 8 mm pocket spacing, 3.1 mm pocket depth

**Recommended pick and place nozzle** OD: 5 mm; ID:  $\leq$  2.5 mm

**PCB washing** Only pure water or alcohol recommended



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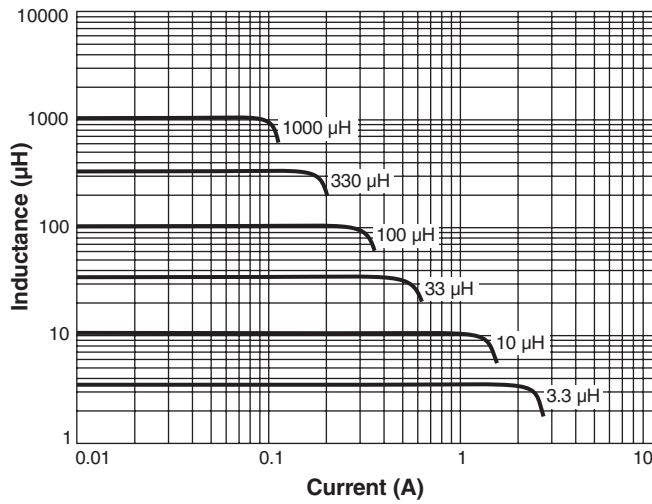
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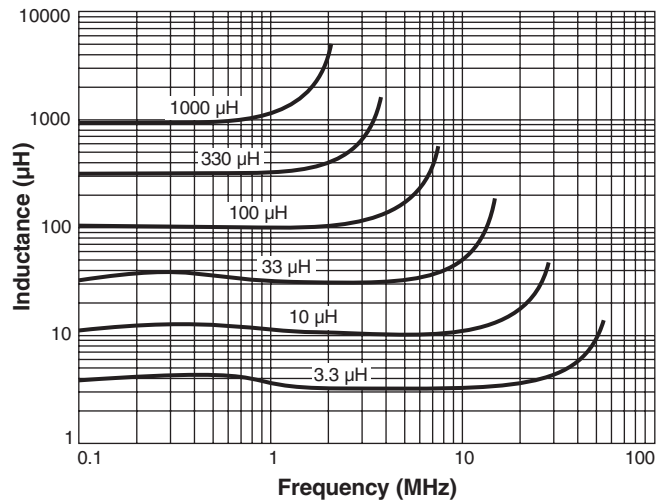


# Coupled Inductors for SEPIC Applications – LPD5030 Series

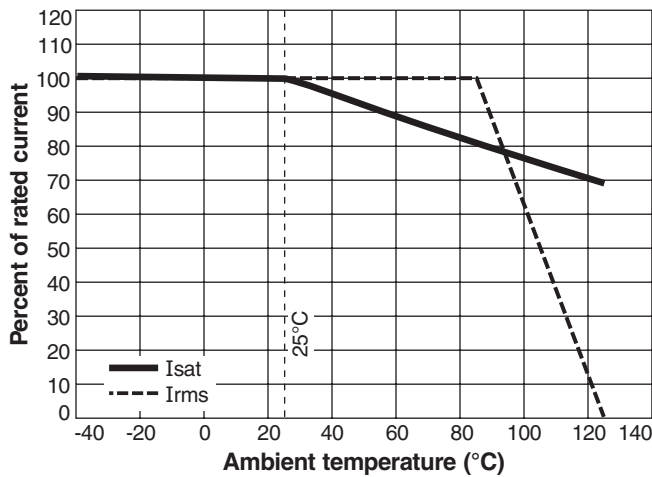
## Typical L vs Current



## Typical L vs Frequency



## Typical Current Derating



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